

DETAILED ACTION

1. Applicant's Arguments/Remarks have been received on February 7, 2007.
2. The text of those sections of Title 35, U.S.C. code not included in this action can be found in the prior Office Action.

Claim Rejections - 35 USC § 102/103

3. The rejection under 35 U.S.C. 102(b) as anticipated by or in alternative under 35 U.S.C. 103(a) as obvious over Schmid et al. on claims 1-14 and 25-38) are maintained. The rejection is repeated below for convenience..
4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-14 and 25-38 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Schmid et al. (US Patent 6,495,278 B1).
6. In regard to claims 1, 7, 13, 25, 31, the Schmid et al. reference discloses an electrically series connected (Column 4, Line 59) MEA fuel cell with a PEM Interposed between two electrode layers with electrocatalyst interface adjacent to the PEM layer

(Column 1, Lines 32-34). Each electrode has a provision of a mesh or porous fluid flow layer (Applicants' diffusion layer and also part of the MEA described by the Schmid et al. reference) between separator plates with flow channels (Column 1, Lines 60-62; Figure 3a, Components 20 and 21) and the corresponding electrodes (Column 1, Lines 55-58). An inherent trait of a fuel cell is one electrode has to be a cathode and the other is an anode; the channels of the separator plate in the Schmid et al. reference provides the corresponding oxidant and fuel. The Schmid et al. reference discloses the MEA with the porous fluid flow layer (Column 1, Lines 55-57; Applicants diffusion layer) can be sealed on the perimeter of the separator plate (Column 1, lines 52-65) and around the perimeter of fluid manifold openings (Column 5, Lines 5-8). In Figure 5a, illustrates a first series of lands (the flow paths to the right of the fluid manifold, the flow path to the left of the manifold and the manifold itself which are formed on a face plate 11) disposed between and separating flow channels and a sealing layer (component 50) adheres the land portions of said plate to secure direct contact between the first diffusion media and the separator.

In regard to claims 2-4, 8-10, 26-28, 32-34, the Schmidt et al. reference discloses an adhesive that can be an epoxy, electrically conductive or electrically insulating (Column 5, Lines 37-39 and 53).

In regard to claims 5, 11, 29, 35, the Schmid et al. reference illustrates the MEA in contact with a series of lands on the separator plate (Figure 3a). These lands are provided on the anode and cathode side of the MEA.

In regard to claims 14 and 38, the Schmid et al. reference discloses cooling spaces in the form as grooves on the surfaces of the separator plates are for coolant streams.

It is noted that claims 6, 12, 30, 36, are product-by-process claims. "Even though product-by-process claims are limited by and defined by the process, determination of patentability is based on the product itself. The patentability of a product does not depend on its method of production. If the product in the product-by-process claim is the same as or obvious from a product of the prior art, the claim is unpatentable even though the prior product was made by a different process." In re Thorpe, 777 F. 2d 695, 698, 227 USPQ 964, 966 (Fed. Cir. 1985). Since the fuel cell system of the Schmid et al. reference is equivalent to that of the Applicant's, Applicant's process is not given patentable weight in this claim.

Response to Arguments

7. Applicant's arguments filed February 7, 2008 have been fully considered but are not persuasive.

Applicants' principal arguments are:

A) Applicant argues, "Applicant submits that although the Examiner points to a seal adhered to the separator plates around the fluid manifold opening 30, there is no teaching or suggestion in the Schmid reference of the sealing layer adhered to the land portions between adjacent flow channels to secure direct contact between the diffusion media and the plate. In Schmid, the adhesive bonding agent 50, considered the sealing layer by the Examiner, is not adhered to the land portion of the plate between adjacent

grooves 20 or 21. Rather, Schmid merely states that "[an] adhesive bonding agent 50 encapsulates the edge portion of the membrane 2 (Column 8, lines 63-64)." However, Fig. 5a discloses first surface on plate 11 with a series of flow channels (components 20 to the right of the fluid manifold and left of the fluid manifold and the manifold itself). In between these flow channels there are a series of lands separating these fluid flow channels with a bonding agent 50 on these lands which are in between the fluid flow channels. The bonding agent does secure the direct contact between the diffusion layer and the plate. The diffusion layer is in between the plate and the electrode i.e. a mesh or porous fluid flow layer between separator plates and corresponding electrode (1, lines 50-60). The surface of MEA is in contact with the plate 11. The bonding agent bonds the MEA 5 and the plates 11 and 12 on each side, thus securing a direct contact between the diffusion media and the fluid flow pate and seals the first surface.

B) Applicant argues," With regard to section (B) of the "Response to Arguments," the arguments set forth in the previous response, as well as those contained herein, assert that there is no teaching of the claimed land portion, flow channel, diffusion media, and sealing layer arrangement. There is nothing improper in asserting the deficiency of a rejection. Rather, it is improper to form a rejection under either 35 U.S.C. § 102 or § 103 without some sort of teaching or suggestion of the claimed features. The Office Action merely states that the claimed arrangement is inherent in Figure 5a of Schmid. Applicant respectfully requests the Examiner to specifically point out where each of the claimed features is taught in Schmid if the present rejection is maintained. Even if the present characterization of Schmid by the Examiner properly teaches the

previously claimed land portions, there is no teaching of a fuel cell where the land portions are disposed between adjacent flow channels and have an adhesive securing the diffusion media thereto, as claimed. “ Again, these arguments are mere assertions of which the Applicants did not provide any evidence to support the arguments. Figure 5a illustrates seals around component 30 (the Examiner considers 30 a flow channel), to the right and to the left of the manifold there exist other flow channels formed on the surface of plate 11 and 12, there are lands in between these flow channels with an adhesive bonding the MEA to the two plates 11 and 12 thus securing the contact between the MEA to the plate. One of ordinary skill would understand that the diffusion layer is at the surface of the MEA touching the fluid flow plates to prevent fluid crossover. All fuel cells have MEAs with a diffusion layer or some kind of backing at the interface of the catalyst and the fluid flow plates to prevent fluid crossover. To support this statement, Column 1, Lines 50-60 discloses a diffusion layer as a porous fluid flow layer between the separator plates and electrodes, otherwise fluid would crossover and it would short circuit the fuel cell.

Conclusion

8. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Helen O. Chu whose telephone number is (571) 272-5162. The examiner can normally be reached on Monday-Friday 8am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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